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Date \_\_\_\_\_  
Algebra II

### Multiplying and Dividing Rational Expressions

1.  $\frac{x^2 - 2x - 15}{2y - 8} \cdot \frac{12 - 3y}{x^2 - 25}$

$$\frac{\cancel{(x-5)}(x+3)}{2(y-4)} \cdot \frac{3\cancel{(4-y)}^{(-1)}}{\cancel{(x+5)}(x-5)}$$

$$\frac{-3(x+3)}{2(x+5)}$$

2.  $\frac{24a^2b^2}{7c^3} \cdot \frac{3}{21c^2}$

$$\frac{6ab}{c}$$

3.  $\frac{y^2 - 81}{(y+9)^2} \cdot \frac{10y+90}{5y-45}$

$$\frac{\cancel{(y+9)}(y-9)}{\cancel{(y+9)}(y+9)} \cdot \frac{2\cancel{(y+9)}}{\cancel{5}(y-9)}$$

$$\frac{2}{y-9}$$

4.  $\frac{x^2 + 12x + 36}{x^2 - 36} \cdot \frac{36 - x^2}{2x + 12}$

$$\frac{\cancel{(x+6)}(x+6)}{\cancel{(x+6)}(x-6)} \cdot \frac{\cancel{(6-x)}^{(-1)}(6+x)}{2\cancel{(x+6)}}$$

$$\frac{-1(x+6)}{2}$$

$$5. \frac{3y^2}{2x^2+3x-2} \cdot \frac{1-4x^2}{10y}$$

$$\frac{2x^2+3x-2}{(x+4)(x-1)}$$

$$6. \frac{x^2-5x+4}{2x} \div \frac{2x-2}{8x^2}$$

$$\frac{3y^2}{(x+2)(x-1)} \cdot \frac{(1+2x)(1-2x)}{2} \cdot \frac{-3y^2(1+2x)}{2(x+2)}$$

$$\frac{x^2-5x+4}{2x} \cdot \frac{8x^2}{2x-2} = \frac{(x-4)(x-1)}{2x} \cdot \frac{2x^2}{2(x-1)} = \frac{2(x-4)}{2x}$$

$$7. \frac{b^2-b-6}{2b} \cdot \frac{b^2}{b^2-4}$$

$$8. \frac{x^2-x-2}{x^2-6x+8} \cdot \frac{z-3}{z-3}$$

$$\frac{b^2-b-6}{2b} \cdot \frac{b^2}{b^2-4} = \frac{b(b-3)}{2(b-2)}$$

$$\frac{(x-2)(x+1)}{7(3-z)} \cdot \frac{z-3}{(x-4)(x-2)}$$

$$\frac{(b-3)(b+2)}{2b} \cdot \frac{b^2}{(b+2)(b-2)}$$

$$\frac{-1(x+1)}{7(x-4)}$$

$$9. \frac{x^2+5x+6}{3y^2} \cdot \frac{9y}{2x+4}$$

$$10. \frac{x^2+9x-22}{x^2-121} \div (2-x)$$

$$\frac{(x+3)(x+2)}{3y^2} \cdot \frac{3y}{2(x+2)}$$

$$\frac{x^2+9x-22}{x^2-121} \cdot \frac{1}{2-x}$$

$$\frac{3(x+3)}{2y}$$

$$\frac{(x+11)(x-2)}{(x+11)(x-11)} \cdot \frac{1}{2-x}$$

$$\frac{-1}{x-11}$$